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# The Senn Pest, *Eurygaster integriceps*, in the Near East

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The senn pest (*Eurygaster integriceps* Put.), which is also known under other vernacular names such as *süne*, *souné* and *sunn*, occurs as one of the most destructive insects of cereals in Turkey, Syria, Iran, Iraq and the Soviet Union. It is also found in Afghanistan and Lebanon, causing only limited damage.

Two related species, *Eurygaster maura* (L.) and *E. austriaca* (Schr.) occur in central and southern Europe but they are not regarded as major pests. The distribution of *E. maura* extends into the Near East, overlapping with the range of *E. integriceps*, but its importance in that region has not been evaluated.

## *Economic Importance*

Among the cultivated gramineous plants, wheat is damaged most by the senn pest. Barley usually escapes severe damage because of its early ripening. In addition to grain crops, the insect attacks a great variety of grasses.

The adults of the senn pest feed on the stems of young succulent plants early in the spring and later both the adults and the nymphs attack the kernels, especially during the milk stage. The main damage is consequently two-fold. The feeding puncture on the stem causes the death of the surrounding tissues, girdling the stem and resulting subsequently in the gradual withering of the whole plant. The extent of the damage depends not only on the density of the insects feeding on the plant but also on the condition of the plant itself. In the non-irrigated fields the affected plant is usually completely lost because of its failure to produce tillers. This type of damage is often ignored as the affected plants soon shrivel and disappear but nevertheless it usually causes a loss of over 25 percent of the stand. In irrigated wheat fields, on the other hand, tillers are usually produced at an earlier stage and the destruction of the main culm results in a reduction of the yield but not a complete loss of the plant.

The second type of damage is caused by feeding of the insect on the kernels. The insect punctures the kernel and sucks out its sap at the very early stage of caryopsis development. Two to three insects can cause a total loss of the plants within a square yard. This type of damage is more spectacular and better known because it may cause an otherwise healthy looking grain field to become unworthy of harvesting.

Even when a kernel is ripe and becomes rather hard, the insect can still puncture the seed coat and derive some nutrients from it, apparently through the action of enzymes. The ripe kernels, however, are not preferred by the insects when there are fresh ones available in the neighboring fields.

Another type of damage occurs when the infestation is light but it has not received much attention from farmers. The insect, even limited in number, introduces into the grain while feeding certain enzymes which significantly lower the baking quality of the resulting flour. The adverse effect of those

enzymes is evident even when only a small amount of such wheat grain is mixed with a large quantity of sound grain.

Although the losses caused by the senn pest vary considerably in various areas and seasons, they are seldom less than 25 percent of the crop. In severe outbreaks the senn pest can cause complete losses of the crops over large areas.

In 1956, a survey was carried out in Turkey, which reveals that approximately 1.5 million hectares of cereals were infested by the senn pest. The affected areas were all situated in the southeast of the country, in the vilayets of Diyarbakir, Urfa, Adiyaman, Malatya, Elazig, Tunceli, Bingol, Siirt and Mardin.

### *Life History*

The senn pest is a migratory insect and has only one generation each year. In early spring, usually about mid-March, the hibernating adults emerge from the soil in their wintering places and fly to nearby valleys. The distance that the migrating insect covers is usually within 24 to 32 kilometers. During the migration the adults at first emerge and move individually but soon they appear in great numbers. After arriving in the valleys they soon commence feeding and copulating. Oviposition begins in late April to early May and each female lays 60 to 100 or more eggs, usually in three to four single-tier batches on the underside of leaves. The eggs are, as a rule, laid very close to the ground on leaves and stems of host plants and also on non-gramineous weeds. The adults die in a few weeks after the appearance of the new generation from which the most important damage results.

By the end of June nearly all the insects of the new generation reach the adult stage and they are most active at temperatures between 25° and 30° C. The feeding takes place in the morning and afternoon. During the hot hours of the day the insects remain on the ground or in cracks in the ground.

Before the heading of small grains the insects are more or less evenly distributed on grain crops and neighboring wild grasses. The grasses usually wither first and all the insects then move to the grain fields. After the crop has been harvested, the insects find shelter under piles of sheaves for some time until they migrate to the mountains for hibernation during late July and mid-August.

It is still disputed whether the insects, after arriving in their wintering places, immediately enter the soil and hibernate, or remain on the higher mountains during the warmer months for aestivation and descend to lower levels in the fall for hibernation. It is also stated in literature that the senn pest does not always migrate to the mountains but that it may hibernate even in the valleys wherever proper shelter is available. In most instances, however, hibernation takes place in the mountains, 2 to 3 inches deep into the soil in the root area of such plants as *Astragalus*, *Artemisia* and *Acantholimon* (Figure 1) and in the more northern areas below the litter in forests of oak and maple. In early spring the wintering adults emerge from the soil and migrate to the valleys, thus completing the life cycle.

### *Control Measures*

Until a few years ago efforts to control the senn pest were confined primarily to the eradication of the insect in the wintering areas. In the belief that *Astragalus* was the main plant whose roots harbor the insect, campaigns were organized to destroy this plant by uprooting or burning. In some places chemicals such as crude oil or kerosene were applied onto the roots of *Astragalus* plants in an effort to kill the insect. Needless to say, those practices were ineffective and caused more harm than good.

A more economical and practical method of control has been the collecting of adults from fields, either by hand or mechanical devices. In a case of emergency, hand picking is still practised at present, but the limitations of such a measure are well recognized.

Considerable progress has been made in the control of the senn pest with synthetic insecticides and with parasitic insects.

Recent investigations have shown that any one of the insecticides of the organic phosphoric group, at rates of 350 to 600 grams of the active ingredient per hectare, give satisfactory control. Under certain conditions but to a lesser degree, DDT at higher rates also proves to be effective. The important

factor involved in the application of chemical control is now the cost.

The senn pest is attacked in nature by a number of enemies. Among these, the Scelionid egg parasite *Microphanurus semistriatus* (Nees) is widely distributed and has been used for combatting the senn pest. In some places natural parasitization by this species was as high as nearly 50 percent, but apparently it was not sufficient to reduce the losses to any appreciable degree. This parasite can easily be bred in the laboratory for release in the field at an appropriate time. The breeding techniques, however, still need to be improved. The parasite over-winters in the adult stage usually under the bark of a

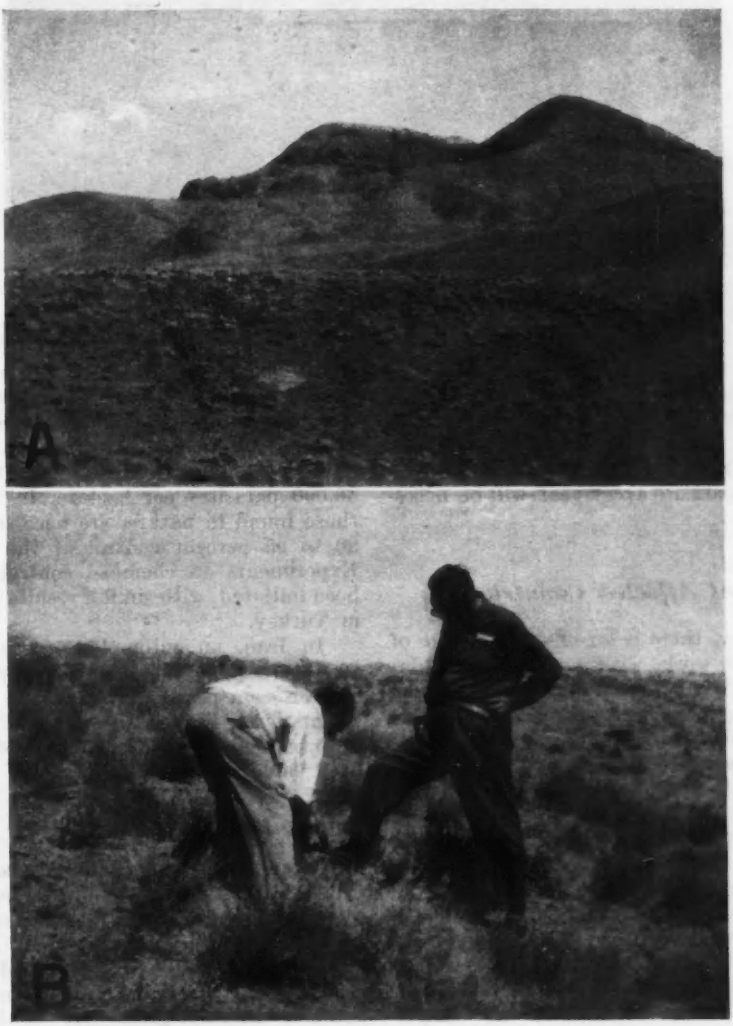


*Figure 1.* A. An overwintering ground of the senn pest in Iran. B. A close view of the overwintering ground.

*Figure 2.* Field study of the senn pest in Turkey.

tree. Since there are in general very few trees in the areas affected by senn pest in the Near East, its successful control by parasites may depend upon the increase of the number of trees. Otherwise, the breeding and release of the parasite every year will be necessary.

### *Activities of Affected Countries*

In Turkey, there is an office in charge of the senn pest work, with a well-equipped laboratory at Diyarbakir where investigations on the biology, ecology and control of this insect are carried out (Figure 2). Insecticides have been extensively used in the affected areas during the past two years with satisfactory results. In 1956, the acreage sprayed totalled 145,000 hectares, including 130,000 hectares by aircraft and 15,000 hectares from the ground.

In Iran, senn pest investigation is also a major project. Control efforts have been made mainly on the use of parasites, and a laboratory for the breeding of parasites has been established at Isfahan in the central part of the country. About two hundred million individuals of *Microphanurus semistriatus* have been liberated during the past year. Being distributed at 10,000 to 12,000 parasites per hectare, about 15,000 hectares of grain crops would have been protected. Experience indicates, however, that about 30,000 parasites per hectare, in addition to those found in nature, are necessary to give 90 to 95 percent control of the senn pest. Experiments on chemical control have also been initiated, with similar results as obtained in Turkey.

In Iraq, an entomologist was placed in 1955 to assume the responsibility of studying the senn pest.

In Syria, limited experiments on the use of insecticides for the control of the senn pest have been initiated.

### *International Efforts*

In an effort to initiate international action towards the solution of this serious problem, the Government of Turkey convened a working party on senn pest in Ankara in October 1955, which was attended by representatives of Syria and Iraq, in addition to Turkish entomologists. At that working party the current situation of the pest was reviewed and recommendations with respect

to its control and research were formulated for submission to the governments of affected countries. That working party also recommended to the governments that FAO's assistance be requested in this connection.

The FAO Conference at its eighth session in 1955, recognizing the regional nature of the problem, recommended that FAO give due consideration to the initiation of a regional project for the control of the senn pest, through the establishment of a working party to promote coordinated investigations on control measures and through the provision of technical assistance to the affected countries. Accordingly, a survey was carried out from late May to early July in 1956 to examine the prevailing conditions and research projects in progress. A meeting of an *ad hoc* working party will be convened by FAO in Ankara, 3 to 7 December 1956, to consider the various aspects involved in the control of the senn pest and to make appropriate recommendations for furthering inter-governmental co-operation in this regard.

# *Verticillium* Wilt of Potato in Peru

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DURING the systematic survey of plant diseases carried out by Abbott [1] in 1927, a wilt disease caused by *Fusarium oxysporum* was found on potatoes grown on the mountains as well as in the coastal areas. Later G. Garcia Rada attributed the cause of serious losses of potatoes in the Rimac Valley, especially during the 1944 season, to the same disease. As the soils of the central coastal area of Peru are heavily infested with *Verticillium albo-atrum* causing severe losses of cotton, it was rather surprising that this fungus had not been reported to attack potatoes, considering especially the large increase of the potato acreage during the past years.

In the growing season of 1956, potato plants in the Cañete Valley, showing profound disorder in the root system, were examined at the invitation of the Experimental Station of Cañete. In a field of the Cerro Alegre estate a high percentage of potato plants were found having foliar symptoms similar to those of cotton infected by *Verticillium albo-atrum*. The leaves showed brown intervenial spots of varying sizes, marginal necrosis and upward rolled edges. Another conspicuous symptom was the yellowing of the leaves particularly on the lower side. Later the affected leaves wilted and died, but most of them remained on the stem. The stem when sectioned longitudinally showed yellow discoloration which later turned into brown, especially in the vascular system. This discoloration was observed from the base of the stem up to the tip, extending even into the petiole. In the sectioned tubers the same discoloration could sometimes also be found.

In most of the other fields at Cañete the percentages of dead plants were high, and the symptoms observed, which were somewhat different from those described above, included yellowed leaves, abundant formation of aerial tubers, upright terminal shoots with leaves rolled upward, general wilting and premature death of the plant. In cross sections of the basal part of the stem signs attributable to *Fusarium* and *Verticillium* wilts could be seen. In no case, however, stem rot due to *Rhizoctonia solani* was observed.

Symptoms of both types were also found in potato fields of the Carabayllo Valley but the disease incidence was less severe there than in the Cañete Valley.

In laboratory tests, *Verticillium albo-atrum* was isolated from plants from Cañete and Carabayllo, which showed symptoms similar to those of *Verticillium* wilt of cotton. It demonstrated for the first time that under the conditions prevailing in the coastal area of central Peru this fungus could attack potatoes.

With regard to plants showing the second type of symptoms, two strains of *Fusarium* were isolated from those collected in Cañete, but both *Fusarium* and *Verticillium albo-atrum* were isolated from those collected in Carabayllo.

From these preliminary studies it may be said that in the coastal plain of central Peru *Verticillium albo-atrum* attacks potatoes either alone or in combination with *Fusarium*. In the first instance the symptoms caused are similar to those on cotton and in the second case the disease is characterized by the formation of aerial tubers. Investigations on this disease-complex and inoculation tests with the two fungi are being continued in order to determine more definitely their pathogenicity and the characteristics of the two wilts.

[1] ABBOTT, E. V. 1929. Diseases of economic plants in Peru. Phytopathology 19: 645-656.

# Plant Disease Situation in the United States [1]

Compiled by PAUL R. MILLER

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## *Occurrence of* Heterodera fici *in California*

SHER, S. A. and D. J. Raski, of the University of California, report that by examining the soil and root samples collected in November 1954 from a nursery of Indian rubber (*Ficus elastica*) showing poor growth at San Bernardino, numerous females of *Heterodera* were found on the roots and numerous larvae, males and cysts in the surrounding soil. Since then Indian rubber plants were sampled in seven nurseries in Southern California and six of those nurseries were found to harbor the nematode, which was identified as *Heterodera fici* Kirjanova 1954 [2]. In the field *H. fici* was found on the Mission variety of the commerical fig (*Ficus carica*) in July 1955 in Yolo County.

In greenhouse, inoculation with *Heterodera fici* was successful only in the genus *Ficus*. When grown in infested soil, the following species and varieties were infected: *F. elastica*, *F. elastica* var. *variegata*, and the Brown Turkey, Mission, Calimyrna, and Kadota varieties of *F. carica*. Plants which did not become infected under similar conditions were sugar beet (*Beta vulgaris*), cauli flower (*Brassica oleracea*), orchard nettle (*Urtica urens*), common nettle (*U. gracilis*) and hop (*Humulus lupulus*).

*Heterodera fici* was considered by Cooper [3] as a synonym of *H. humuli* Filipjev 1941. Since inoculation with the Californian species from *Ficus* failed to produce infection in nettles or hops, the name *H. fici* is retained.

This represents a first record of *Heterodera fici* in the United States.

## *Bacterial Leaf Spot of Alfalfa in Iowa*

Raymond D. Brigham of Iowa State College reports that a bacterial leaf spot resembling that caused by *Xanthomonas alfalfæ* (Riker, Jones & Davis) Dowson was observed on alfalfa at the College Agronomy Farm in June 1956. It is believed to be the first report of the occurrence of this disease in the United States since it was originally described in 1935 [4].

The disease occurred chiefly on a clonal selection from Cossack alfalfa. This selection was seriously infected in each replication, but only slight infection occurred in other selections from Cossack. The nursery in which the bacterial leaf spot was found was established from rooted cuttings in May 1955. It was well isolated from other alfalfa fields and no other fields at the Agronomy Farm showed evidence of the disease. At the beginning of August the disease was still present in the plots where it was originally observed.

Outside the United States, this bacterial disease has been reported to occur in India.

## *Aerial Stem Rot of Sesame in Texas*

As reported by D. Donald Poole, an aerial stem rot was found to attack the variety Guacara of sesame (*Sesamum indicum*) in the nursery near College Station, Texas, in 1954, through the co-operative investigations of the U.S. Agricultural Research Service and the Texas Agricultural Experiment Station.

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[1] This report is based upon material submitted by Collaborators of the Plant Disease Epidemics and Identification Section, Agricultural Research Service, United States Department of Agriculture.

[2] KIRJANOVA, E. S. 1954. Plant Nematology in the U.S.S.R., retrospect and prospect. Trans. Problematic & Thematic Conferences. Moscow Acad. Sci. U.S.S.R. 3: 9-47. (In Russian.)

[3] COOPER, BEOWULF A. 1955. A preliminary key to British species of *Heterodera* for use in soil examination. Proc. Univ. Nottingham 2nd Easter School Agr. Sci. Soil Zoology, pp. 269-280.

[4] RIKER, A. J., F. R. JONES and MARGUERITE C. DAVIS. 1935. Bacterial leaf spot of alfalfa. Jour. Agr. Res. 51: 177-182.

Guacara is a relatively new introduced Venezuelan variety planted for the first time in 1954. The causal organism was identified as *Helminthosporium sesami* Miyake, which was originally described from China and apparently had not previously been reported in the United States. The disease is believed to have been introduced with the seed of certain introduced entries which showed the first and most serious infection in the field.

Symptoms were most prominent on the stems, leaves, pedicels, and capsules of almost mature plants. Stem lesions varied from small flecks to large, sunken, dark-brown spots. In many cases coalescence of lesions weakened the stem. Lesions on capsules and pedicels varied from small dark-brown spots at the base of the pedicel to large brown lesions that enveloped the capsule and resulted in almost complete loss of seed. Leaf lesions varied from small brown spots to large elongated lesions. Extensive leaf lesions caused some premature defoliation. The pathogenicity of the fungus was confirmed by inoculations.

### *A Bacterial-induced Chlorosis in Soybean*

According to Lewis W. Erdman, Herbert W. Johnson, and Francis E. Clark, of the U.S. Agricultural Research Service, the Lee variety of soybean, which was bred for mid-southern adaptation and for other selected qualities, is affected by a chlorosis which appears to be in association with certain inoculants of nodule bacteria. This variety was released in 1954 and was expected to replace to a large extent the variety Ogden, which shatters readily, has a green seed coat, and is highly susceptible to purple seed stain.

During the first crop year and later, an upper-leaf chlorosis appearing during the pre-bloom stage was observed by growers of the Lee soybean. The condition was spotty in fields and the number of plants with yellowish-white top leaves ranged from negligible to as high as 10 percent at any one time. Many of the afflicted plants recovered spontaneously within a week or so; meanwhile other plants might develop chlorosis. The condition appeared in all areas where the variety Lee was grown, being somewhat more prevalent on sandy than on heavier soils. Its effect on yield is believed to be slight.

A similar irregular chlorosis was noted during strain testing of legume nodule bacteria in field plots of Lee soybeans at Brawley, California, in 1954 and 1955. The chlorosis appeared to be associated with certain rhizobial inoculants. To investigate its etiology, Lee soybeans were grown in a sand-nutrient solution substrate in greenhouses at Beltsville, Maryland, during 1955 and 1956. Seeds were surface-sterilized and then inoculated with various pure cultures of rhizobia. Some of those cultures were selected because of their being suspect in the Brawley plots; others added in later tests were isolated from root nodules on chlorotic plants. Altogether, four separate experiments, with all inoculant treatments at least in triplicate, were carried out. Upper leaf chlorosis varying from light green to nearly white leaves, appeared regularly in all plants given certain inoculants but not in plants given other inoculants. In many cases vegetative yields of the chlorotic plants at the time of blooming were as good as or even better than those of plants inoculated with highly effective rhizobia which did not induce any chlorosis. Good nodulation was observed on roots of the chlorotic plants and the nodules were definitely not of the parasitic type. With severe chlorosis there was stunting of plant growth and reduction in yield. The susceptibility of other soybean varieties to this bacterial-induced chlorosis and the conditions affecting its incidence in the Lee soybean are being studied.

# Outbreaks and New Records

## India

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### The Rice Root Aphid in West Bengal

THE rice root aphid, *Rhopalosiphum rufiabdominalis* (Sasaki) (Syn. *Toxoptera rufiabdominalis* Sasaki, *Yamataphis rufiabdominalis* Mats.) has recently been noted in several localities in West Bengal, as a minor pest of paddy and potato. The aphid is greyish yellow in colour with reddish abdomen. It always feeds on the underground portions of the plants and occurs usually in large numbers. The infested plants show stunted growth but they are seldom killed.

The incidence of this aphid has been noted in several districts on the plains but has not yet been recorded from the hills. It occurs on potato during January and February, on Aus paddy during June and on various grasses during the winter and summer months. The species does not appear to have been recorded from India in the literature. (Editor's note: Mr. E. O. Pearson, Assistant Director of the Commonwealth Institute of Entomology, kindly advised us that in a paper by J. P. Doncaster due to appear soon in the *Bulletin of Entomological Research*, South India is included amongst the regions in which *Rhopalosiphum rufiabdominalis* occurs, because the figures and descriptions given in the account by George [1] of *R. avenæ* (F.) in South India indicate that this author was in fact dealing with *R. rufiabdominalis*).

[1] GEORGE, C.J. 1925. Root-sucking aphids of Coimbatore Jour. Asiat. Soc. Bengal. N. S. 20: 307–311.

## Surinam

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### A New Disease of Plantain

Young plantain plants in the Paramaribo area were found to be affected by a disease apparently unrecorded in the literature. The disease usually occurs on plants which show low vigor due to poor drainage, poor nutrition, borer attack or other factors. Bananas in the same area were not affected.

The characteristic symptoms of the disease are the browning and rotting of rolled young central leaves. The symptoms first appear on the leaf tips or where the young leaves emerge and progress downwards, until, in severe cases, all the central leaves are affected. The upper parts of the diseased young leaves often appear as a brown shrivelled mass distinctly visible above the plant. New shoots are sometimes formed in the affected plants, but in most cases the new shoots also become rotten, turning into a decomposed stinking mass. In the later stages of the disease the surrounding leaf sheaths are also affected and the whole plant collapses.

The development of the disease appears to be favored by high humidity, as only a few diseased plantain plants were observed in one estate during the beginning of the dry season this year.

From the diseased plants several organisms, including *Diplodia* sp., *Fusarium* spp.

and bacteria, were isolated. Inoculation experiments with these organisms under high humidity failed to produce positive results, except in one case where characteristic symptoms of the disease were reproduced by inoculation with a species of *Fusarium*, perhaps *F. moniliforme*. The result obtained with this species of *Fusarium*, however, could not be confirmed in a later experiment.

When the disease was prevalent, good control was obtained in most cases by cutting off the diseased parts of the pseudostem and spraying the plant with copper fungicides.

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# Plant Quarantine Announcements

## French West Africa

Order No. 8443-S.ET of 28 October 1955, published in the *Journal Officiel de l'Afrique-Occidentale française*, No. 2797, 3 December 1955, prohibits the introduction of water hyacinth (*Eichhornia crassipes*) into French West Africa. The transit, storage, cultivation, multiplication, sale and transport of water hyacinth is also prohibited in the whole territory.

## United Kingdom (England and Wales)

The Importation of Carnation Cuttings Order of 24 September, which came into force 30 September 1956, prohibits the importation of carnation cuttings into England and Wales unless they are derived:

(*a*) from plants which have been tested and found to be free from bacterial wilts caused by *Pseudomonas caryophylli*, *Erwinia* sp. or other similar organisms, and which have been derived immediately from plants found to be similarly free from such bacterial wilts; or

(*b*) from countries where such bacterial wilts are not known to be established in any region.

These requirements are additional to those prescribed in the Importation of Plants Order, 1955, viz., (*a*) a phytosanitary certificate in prescribed form to accompany each consignment; (*b*) examination of the plants during the growing season to ascertain substantial freedom from injurious pests and diseases; (*c*) freedom of potato wart within a 2– kilometer radius of the field of origin during the preceding ten years; and (*d*) Colorado beetle not established within a 25– kilometer radius of the field of origin or being intensively controlled (see *FAO Plant Prot. Bull.* 3: 60-62. 1955).

The new Order was made following the isolation by the Plant Pathology Laboratory of a new strain of bacterial wilt which was traced to imported carnation cuttings.

## Union of South Africa

1. Government Notice No. 1213 of 6 July 1956, published in the *Government Gazette*, Vol. 185, No. 5712, on the same date, declares bulbs and tubers to be plants for the purpose of the Agricultural Pests Act, 1911. Consequently the importation of bulbs and tubers into the Union is prohibited unless a written permit of the Department of Agriculture specifically autorizing their introduction has been obtained in advance. The consignment destined for importation must be accompanied by a valid phytosanitary certificate supported by the inspection of the mother plant during active growth in the field. These restrictions will be strictly enforced from 1 January 1957.

2. Proclamations No. 142 and 145 of 28 June 1956, published in the *Government Gazette*, Vol. 185, No. 5722, 27 July 1956, specify restrictions for the introduction of seed of tobacco and of any other plant of *Nicotiana*. Those restrictions are to provide more rigid precautionary measures against the possible introduction of tobacco pests and several tobacco diseases, especially *Peronospora tabacina*, not present in the Union.

Proclamation No. 142 amends the schedule to Proclamation No. 286 of 6 November 1936. By the new Proclamation, seed of tobacco and of any other plant of the genus *Nicotiana* from Australia, the United States, Canada, Argentina, Brazil or any other country where *Peronospora tabacina* or other species of *Peronosporaceæ* parasitic to tobacco occur, is added to the schedule of plants, the introduction of which is prohibited. The provisions in the schedule to Proclamation No. 286 – clause 2(1) (*b*) and clause 2 (2) – with regard to

the certification of freedom from *Ephestia elutella* required for the introduction of unmanufactured or leaf tobacco from overseas or other states and territories in Africa are repealed.

Proclamation No. 143 declares that the seed of the tobacco plant and of any other plant belonging to the genus *Nicotiana* be included in the definition of a « plant » for the purpose of the Agricultural Pests Act. 1911. This provision subjects the importation of such seed to the requirement of an import permit.

Proclamation No. 144 declares that the provisions of the Agricultural Pests Act of 1911 with regards to inspection, cleansing and disinfecting of plants, and issue of clean certificates, shall apply, *mutatis mutandis*, in respect of the introduction of seed of tobacco or any other plant of the genus *Nicotiana* from any territory outside the Union of South Africa, excepting the Territory of South West Africa.

Proclamation No. 145 adds the seed of tobacco or of any other plant of the genus *Nicotiana* onto the list of plants contained in the Agricultural Pests Act, the introduction of which is prohibited unless introduced under supervision by an officer under such precautions as the Department of Agriculture may prescribe and unless a permit has been obtained from the Department authorizing the introduction.

## Uruguay

Decree of 12 June 1956, issued by the Ministry of Livestock and Agriculture and published in the *Diario Oficial*, Vol. 203, No. 14852, 30 June 1956, authorizes the importation of potatoes for consumption if each shipment is accompanied by a collective phytosanitary certificate attesting freedom from potato wart caused by *Synchytrium endobioticum*, supported by a phytosanitary certificate currently in international use. This authorization is applicable to potatoes for consumption proceeding from regions where a control system for potato wart exists, as recognized by the Ministry of Livestock and Agriculture, thus providing full assurance that the disease will not be introduced into Uruguay.

The provisions of the new Decree are not applicable to the importation of seed potatoes which must be accompanied by all the certificates required by the legislation in force (see Decree No. 1372-945 of 30 July 1946).

The new Decree was made upon the request of the Department of Agriculture of the Union of South Africa for the simplication of certification procedures concerning potatoes for consumption to be imported into Uruguay. Previously the exporting country was required to issue a certificate with reference to freedom from potato wart within 10 kilometers of the producing field for every producer and every consignee involved in one shipment. Since one shipment generally contains potatoes produced by a number of producers and is destined for a number of consignees, a large number of certificates would have to be issued for each shipment. The new Decree authorizes the use of a single phytosanitary certificate to cover collectively all the potato lots contained in one shipment.

# News and Notes

## Israel and Union of South Africa Ratify International Plant Protection Convention

The Governments of Israel and the Union of South Africa, whose representatives signed the International Plant Protection Convention on 6 December 1951, deposited the instruments of ratification with the Director-General of FAO on 3 and 21 September 1956 respectively. The number of countries contracting to the Convention, including both signatory and adhering members, is thus, at the time of writing, 37, namely: Argentina, Australia, Austria, Belgium, Cambodia, Canada, Ceylon, Chile, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Greece, Guatemala, India, Iraq, Ireland, Israel, Italy, Japan, Korea, Laos, Luxembourg, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Republic of the Philippines, Portugal, Spain, Sweden, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom and Yugoslavia.

## Phytosanitary Convention for Africa South of the Sahara

The Phytosanitary Convention for Africa South of the Sahara was prepared by the Pan-African Phytosanitary Conference convened by the British Colonial Office in August 1948, and was later negotiated by the Commission for Technical Co-operation in Africa South of the Sahara (CCTA). It was signed on 29 July 1954 by the Governments of Belgium, France, Portugal, the Federation of Rhodesia and Nyasaland, the Union of South Africa and the United Kingdom.

The African Convention has as its objectives the prevention of the introduction of plant diseases and pests into any part of Africa south of the Sahara, the eradication or control of the diseases and pests already established in the area and the prevention of their further spread. It provides for the establishment of an Inter-African Phyto-Sanitary Commission which will circulate information and recommend actions required for the fulfilment of the objectives of the Convention. The participating governments are obliged to exercise such control of plant imports and take such action for effectively dealing with plant diseases and pests, as considered necessary by the Commission. A Permanent Committee of Information consisting of the Directors of the Commonwealth Institute of Entomology and the Commonwealth Mycological Institute and the Scientific Secretary of the Commission is to be established in London for the transmission of information regarding plant diseases and pests occurring inside and outside the area.

The African Convention has now been ratified by the following five governments:

| | | |
|---|---|---|
| United Kingdom | 14 December | 1954 |
| Federation of Rhodesia and Nyasaland | 27 July | 1955 |
| Union of South Africa | 3 November | 1955 |
| France | 15 June | 1956 |
| Belgium | 16 July | 1956 |

The Inter-African Phytosanitary Commission has been established and Mr. J. Risbec has been appointed as its Scientific Secretary.

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# A Revised List of National Plant Quarantine Services

This list, which supersedes previous lists published in this *Bulletin*, contains names and addresses of national agencies responsible for the administration of plant quarantine in various countries and territories, and the names of the officers in charge. It was compiled in response to enquiries, in order to facilitate direct contact between those agencies.

AFGHANISTAN

Plant Protection Service
Royal Ministry of Agriculture, Kabul
(Mohammed Karim Kahan Siaie, Director-General)

ALGERIA

Service de la protection des végétaux
Direction de l'agriculture, Alger
(P. Frezal, Chef).

ARGENTINA

Dirección General de Sanidad Vegetal
Ministerio de Agricultura
Paseo Colón 922, Buenos Aires
(Ing. Arturo Rodriguez Jurado, Director General)

AUSTRALIA

Department of Health
Canberra, A.C.T.
(Dr. T.H. Harrison,
Director of Plant Quarantine).

AUSTRIA

Bundesanstalt für Pflanzenschutz
Wien II-27, Trunnerstrasse 5
(Dr. Ferdinand Beran, Director)

BELGIUM

Service phytopathologique
Ministère de l'agriculture
11 avenue du Parc, Ghent
(M. G. Delfosse, Inspecteur principal)

BOLIVIA

Departamento de Sanidad Vegetal
Dirección General de Agricultura
Ministerio de Agricultura, Ganadería y Colonización, La Paz
(Ing. Raúl Pérez Alcalá, Jefe)

BRASIL

Divasão de Defesa Sanitaria Vegetal
Ministerio de Agricultura, Río de Janeiro
(A. D. Ferreira Lima, Director; Dr. João Vieira de Oliveira, Chefe da Fiscalizaçao Fitosanitaria)

BURMA

Department of Agriculture
Ministry of Agriculture and Forests, Rangoon
(Sithu U Khin, Director
U. Myate Soe, Entomologist
U. Khin Maung, Mycologist)

CAMBODIA

Service de police sanitaire végétale
c/o Institut de recherches piscicoles
Phnom-Penh
(Charles Ly Sorarith, Chef)

CANADA

Division of Plant Protection
Department of Agriculture, Ottawa
(W.N. Keenan, Chief)

CEYLON

Department of Agriculture, Peradeniya
(Dr. H.E. Fernando, Entomologist
Dr. J.W.L. Peiris, Plant Pathologist)

CHILE

Departamento de Sanidad Vegetal
Ministerio de Agricultura
Quinta Normal, Casilla de Correo No. 4647
Santiago
(Ing. Agr. Luis A. Belmar Puelma, Director)

CHINA (Taiwan)

Provincial Bureau of Quarantine and Inspection
Taipeh, Taiwan
(Y.C. Chow, Director)

COSTA RICA

Departamento de Defensa Agropecuaria
Ministerio de Agricultura e Industrias
San José
(Ing. Rodrigo Castro E., Jefe)

CUBA

Negociado de Cuarentenas
Ministerio de Agricultura, La Habana
(Ing. Virgilio Lasaga, Jefe)

CYPRUS

Department of Agriculture, Nicosia
(G.P. Georghiou, Agricultural Officer)

DENMARK

Statens Plantetilsyn
13 Gersonsvej, Hellerup
(Hans R. Hansen, Director)

DOMINICAN REPUBLIC

Secretaría de Estado de Agricultura, Pecuaria y Colonización
Sección de Trabajos de Campo, Experimentación y Investigación Agrícola
San Cristóbal, C. B.
(Ing. Alberto Bergés Chupani, Jefe)

ECUADOR

Dirección Técnica de Agricultura
Ministerio de Agricultura, Quito
(Ing. Miguel A. Cevallos, Jefe de Sanidad Vegetal)

EGYPT

Crop Protection Department
Ministry of Agriculture, Dokki
(Ibrahim Bishara, Director General)
Plant Quarantine Section
Customs Building, Alexandria
(Sadek El Sayed Mowafi, Director)

ENGLAND AND WALES

Plant Health Branch
Ministry of Agriculture, Fisheries and Food
Whitehall Place, London, S.W. 1
(W. F. Darke, Head)

FEDERATION OF MALAYA

Department of Agriculture, Kuala Lumpur
(L.N.H. Larter, Assistant Director)

FINLAND

Department of Plant Pathology
Agricultural Research Center
(Maatalouskoelaitos, Kasvitautiosasto)
Tikkurila
(Prof. E.A. Jamalainen, Chief)

Department of Pest Investigation
Agricultural Research Center
(Maatalouskoelaitos, Tuhoeläinosasto)
Tikkurila
(Prof. Veikko Kanervo, Chief)

FRANCE

Service de la protection des végétaux
Ministère de l'agriculture
78 rue de Varennes, Paris, 7ème
(P. Dumas, Chef)

FRENCH WEST AFRICA

Protection des végétaux et lutte antiacridienne
Inspection générale de l'agriculture
Dakar, Sénégal
(A. Mallamaire, Chef)

GERMANY (FEDERAL REPUBLIC OF)

Der Bundesminister für Ernährung, Landwirtschaft und Forsten, Bonn 12
(Dr. H. Drees, Chef Abt. Pflanzenschutz)

GREECE

Service phytopathologique
Ministère de l'agriculture, Athènes
(Andre Ayutantis, Directeur)

GUATEMALA

División de Sanidad Vegetal
Ministerio de Agricultura, Guatemala
(Miguel Angel Reyes, Jefe)

HONDURAS

Departamento de Defensa Vegetal
Dirección General de Agricultura
Tegucigalpa, D.C.
(Abraham Gunera R., Jefe)

INDIA

Directorate of Plant Protection,
Quarantine and Storage, 4-19, Asafali Road
Ajmeri Gate Extension, New Delhi
(Dr. K.B. Lal, Plant Protection Adviser to the Government)

INDONESIA

Institute for Plant Diseases and Pests
(Penjelidikan Hama Tubu-tubuhan)
Bogor, Java
(Sukotjo Pringgoputro, Head)

IRAN

Département de la protection végétale
Ministère de l'agriculture, Téhéran
(Esfandiar Esfandiari, Directeur général
Mohammad Kaussari, Chef de la Section de quarantaine)

IRAQ

Department of Extension and Plant Protection
Ministry of Agriculture, Baghdad
(Sadiq Abdul Ghani Baali, Director)

IRELAND (REPUBLIC OF)

Department of Agriculture
Government Building, Dublin
(D. Delaney, Senior Inspector)

ISRAEL

Division of Plant Protection
Ministry of Agriculture
P.O. Box 8393, Jaffa
(G. Cohen, Head)

ITALY

Servizi Fitopatologici
Ministero dell'Agricoltura e Foreste, Roma
(Dr. Brenno Colonna, Chief)

JAMAICA

Plant Protection Division
Department of Agriculture, Kingston
(Dr. H.C. James, Head)

JAPAN

Plant Protection Section
Promotion Bureau
Ministry of Agriculture and Forestry, Tokyo
(Massakira Hori, Chief
Hidezo Shiino, Quarantine Chief)

JORDAN

Division of Plant Protection and Locust Control
Ministry of Agriculture, Amman
(Jawad Dajani Daoudi, Chief)

KENYA

Scott Agricultural Laboratories
Department of Agriculture
P.O. Box 338, Nairobi
(Dr. R.H. Le Pelley, Senior Entomologist)

LAOS

Département de l'Agriculture
Ministère de l'agriculture, Vientiane
(Thao Phanh Ngaosyvathn, Directeur)

LEBANON

Plant Quarantine Department
Ministry of agriculture
Rue du Port, Beirout
(Adel Cortas, Head)

LUXEMBOURG

Service phytopathologique
Administration des services agricoles
(Edmond Wirion, Chef)

MEXICO

Dirección-General de Defensa Agricola
Secretaría de Agricultura y Ganadería
Tacuba No. 7, Mexico, D.F.
(Ing. Esteban Uranga Prado, Director-General).

MOROCCO

Service de la défense des végétaux
95, avenue de Témara
Rabat (Maroc)
(M. Defrance, Chef)

NETHERLANDS

Plantenziektenkundige Dienst
Wageningen
(Dr. C.J. Briejèr, Director)

NEW ZEALAND

Horticulture Division
Department of Agriculture, Wellington
(A. Greig, Director)

NICARAGUA

Defensa agrícola
Ministerio de Agricultura, Managua
(José Zepeda Alañiz, Jefe)

NORWAY

Statens Plantevern
Sarsgade 1, Oslo
(T.H. Schøyen, Entomologist, J. Jørstad, Mycologist)

PAKISTAN

Department of Plant Protection
Ministry of Agriculture, Karachi - 3
(Dr. Taskhir Ahmad, Director)

PERU

División de Defensa agrícola
Ministerio de Agricultura, Lima
(Ing. Agr. Rafael Martinelli Tizón, Jefe)

PHILIPPINES

Plant Pest and Disease Control Division
Bureau of Plant Industry
Department of Agriculture and National Resources, Manila
(Severo Marquez, Assistant Chief in charge of Plant Quarantine Service)

PORTUGAL

Ministerio da Economia
Direção Geral dos Serviços Agricolas
Repartição de Serviços Fitopatologicos
39 rua de S. Bento, Lisboa
(Ing. Francisco Aranha, Chefe)

SARAWAK

Department of Agriculture, Kuching
(J. Cook, Director)

SAUDI ARABIA

Plant Protection Department
Ministry of Agriculture, Jeddah
(Mohamed Mahmoud El-Salhi,
Plant Quarantine expert)

SOUTHERN RHODESIA

Entomological Branch
Department of Research and Specialist Services
Causeway, Salisbury
(J.A. Whellan, Chief Entomologist)

SPAIN

Servicio Nacional de Fitopatología y Plagas, del Campo
Dirección General de Agricultura
Ministerio de Agricultura, Madrid
(Ing. Federico Bajo Mateos, Jefe)

SUDAN

Research Division
Ministry of Agriculture, Wad Medani
(R.V. Joyce, Government Entomologist)

SWEDEN

Statens Växtskyddsanstalt
Stockholm, 19
(Dr. I. Granhall, Head)

SWITZERLAND

Eidgenössisches Volkwirtschaftsdepartement
Abteilung f. Landwirtschaft
Laupenstrasse 25, Bern
(A. Chaponnier, Chef)

SYRIA

Department of Plant Protection
Ministry of Agriculture, Damascus
(Abou Chamat Abdul Jabar, Director
Hendawy Omar, Chief of Agricultural Quarantine Section)

TERRITORY OF PAPUA AND NEW GUINEA

Department of Agriculture, Stock and Fisheries, Port Moresby
(A.E.P. Dwyer, Director)

THAILAND

Plant Science Division
Department of Agriculture
Ministry of Agriculture, Bangkok
(Kahn Jalavicharana, Chief)

TONGA

Department of Agriculture
Nuku'Alofa
(W. Straatmans, Head)

TURKEY

Ziraat Mücadele Subesi Müdürü
Ziraat Vekâleti, Ankara
(Semsettin Günay, Director)

UGANDA

Kawanda Research Station
P. O. Box 265, Kampala
(A. P. G. Michelmore, Senior Entomologist)

UNION OF SOUTH AFRICA

Division of Plant Control and Quarantine
Department of Agriculture, Stellenbosch
(Prof. S. J. du Plessis, Chief)

UNITED STATES OF AMERICA

Plant Quarantine Branch
Agricultural Research Service
Department of Agriculture
Washington 25, D.C.
(E.P. Reagan, Chief)

VIET-NAM

Plant Protection and Improvement Service
Directorate of Agriculture
Secretariat of State for Agriculture
Saigon
(Lam Ngoc Chan, Chief)

YUGOSLAVIA

Direction fédérale du Service pour la protection des végétaux
Savska 35, IV, Beograd
(Srboljub Todorovic, Chef)

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Roma - Tip. del Senato del dott. Giovanni Bardi